AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claim 1 (Currently Amended): A recombinant ~~or isolated~~ integrin subunit α11 comprising the amino acid sequence shown in SEQ ID No. 2 or fragments thereof, wherein the fragments are selected from the group consisting of a peptide consisting of ~~comprising~~ the amino acid sequence from the cytoplasmic domain from amino acid 1165 to amino acid 1188 of SEQ ID No. 2, a peptide consisting of ~~comprising~~ the amino acid sequence of the extracellular domain from amino acid 804 to amino acid 826 of SEQ ID No. 2, and a collagen type I-binding peptide comprising the amino acid sequence of the I-domain from amino acid 159 to amino acid 355 of SEQ ID No. 2.

Claim 2 (Withdrawn): A process of producing a recombinant integrin subunit α11 having the amino acid sequence shown in SEQ ID No. 1, and homologues and fragments thereof, which process comprises the steps of

a) isolating a polynucleotide comprising a nucleotide sequence coding for a integrin subunit α11, of for homologues and fragments thereof,

b) constructing an expression vector comprising the isolated polynucleotide,

c) transforming a host cell with said expression vector,

d) culturing said transformed host cell in a culture medium under conditions suitable for expression of said integrin subunit α11, of said homologues and fragments, in said transformed host cell, and, optionally,

e) isolating the integrin subunit α11, or homologues and fragments thereof, from said transformed host cell or said culture medium.

Claim 3 (Withdrawn): A process according to claim 2, step c, said transforming being an *in vitro* or *in situ* process.

Claim 4 (Withdrawn): A process according to claim 2, step c, said transforming being an *in vivo* process.

Claim 5 (Withdrawn): A process of providing an integrin subunit α11, or homologues or fragments thereof, as defined in claim 1, whereby said subunit is isolated from a cell in which it is naturally present.

Claim 6 (Withdrawn): An isolated polynucleotide or oligonucleotide comprising a nucleotide coding for an integrin subunit α11, or for homologues or fragments thereof, which polynucleotide or oligonucleotide having the nucleotide sequence shown in SEQ ID No. 1 or suitable parts thereof.

Claim 7 (Withdrawn): An isolated polynucleotide or oligonucleotide which hybridises to a polynucleotide or oligonucleotide as defined in claim 6, whereby said isolated polynucleotide or oligonucleotide fails to hybridise to a polynucleotide or oligonucleotide encoding an integrin subunit α10.

Claim 8 (Withdrawn): A vector comprising a polynucleotide or oligonucleotide as defined in claim 6.

Claim 9 (Withdrawn): A cell containing the vector as defined in claim 8.

Claim 10 (Withdrawn): A cell, as generated by the process in steps a) to c) of claim 2, in which a polynucleotide or oligonucleotide coding for an integrin subunit α11, or for homologues and fragments thereof, has been stably integrated in the cell genome, said polynucleotide or oligonucleotide having the nucleotide sequence shown in SEQ ID No. 1 or fragments thereof.

Claim 11 (Canceled).

Claim 12 (Withdrawn): Binding entities having the capability of binding specifically to integrin subunit α11, or to homologues or fragments thereof, as defined in claim 1, which entities are chosen from the group comprising proteins, peptides, carbohydrates, lipids, natural integrin binding ligands, polyclonal and monoclonal antibodies, and fragments thereof.

Claim 13 (Currently Amended): A recombinant ~~or isolated~~ integrin heterodimer comprising a subunit α11 ~~or fragment~~ according to claim 1 and a subunit.

Claim 14 (Canceled).

Claim 15 (Withdrawn): A process of producing a recombinant integrin heterodimer comprising a subunit α11 and a subunit β, the subunit α11 having the amino acid sequence shown in SEQ ID No. 1, or homologues or fragments thereof, which process comprises the steps of

a) isolating one polynucleotide or oligonucleotide comprising a nucleotide sequence coding for said subunit α11 of said integrin heterodimer, or for said

homologues or fragments thereof, and, optionally, another polynucleotide comprising a nucleotide sequence coding for said subunit β of an integrin heterodimer, or for homologues or fragments thereof,

b) constructing an expression vector comprising said isolated polynucleotides or oligonucleotides

c) transforming a host cell with said expression vector or vectors,

d) culturing said transformed host cell in a culture medium under conditions suitable for expression of said integrin heterodimer, or said homologues or fragments thereof, in said transformed host cell, and, optionally,

e) isolating said integrin heterodimer, or said homologues or fragments thereof, from said transformed host cell or said culture medium.

Claim 16 (Withdrawn): A process according to claim 15, step c, said transforming being an *in vitro* process.

Claim 17 (Withdrawn): A process according to claim 15, step c, said transforming being an *in vitro* process.

Claim 18 (Withdrawn): A process of providing an integrin heterodimer comprising a subunit α11 and a subunit β, as defined in claim 14, or homologues or fragments thereof, whereby said integrin heterodimer is isolated from a cell in which it is naturally present.

Claim 19 (Withdrawn): A cell containing

i) a first vector, said first vector comprising a polynucleotide or oligonucleotide coding a subunit α11 of an integrin heterodimer, or for homologues

or fragments thereof, which polynucleotide or oligonucleotide has the nucleotide sequence shown in SEQ ID No. 1 or parts thereof, and

ii) a second vector, said second vector comprising a polynucleotide or oligonucleotide coding for a subunit of said integrin heterodimer.

Claim 20 (Canceled).

Claim 21 (Withdrawn): Binding entities having the capability of binding specifically to an integrin heterodimer as defined in claim 14, or to homologues or fragments thereof, said binding entities being chosen among the group comprising proteins, peptides, carbohydrates, lipids, natural integrin binding ligands, polyclonal and monoclonal antibodies, and fragments thereof.

Claim 22 (Currently Amended): A fragment of an integrin subunit α11 according to claim 1, said fragment ~~being a peptide selected from the group consisting of~~:

a peptide from the cytoplasmic domain consisting of ~~having~~ the amino acid sequence KLGFFRSARRRREPGLDPTPKVLE (SEQ ID No. 3)~~;~~

~~a peptide having the amino acid sequence of the extracellular domain, from about amino acid No. 804 to about amino acid No. 826 of SEQ ID No. 2; and~~

~~a peptide having the amino acid sequence of the I-domain, from about amino acid No. 159 to about amino acid No. 355 of SEQ ID No. 2~~.

Claims 23-25 (Canceled).

Claim 26 (Withdrawn): A method of producing a fragment of the integrin subunit α11 as defined in claim 22, which method comprises a sequential addition of amino acids.

Claim 27 (Withdrawn): A polynucleotide or oligonucleotide coding for a fragment of the integrin subunit α11 as defined in claim 22.

Claim 28 (Canceled).

Claim 29 (Withdrawn): Binding entities having the capability of binding specifically to an integrin subunit α11 fragment as defined in claim 22, which binding entities are chosen from the group comprising proteins, peptides, carbohydrates, lipids, natural integrin binding ligands, monoclonal and polyclonal antibodies, and fragments thereof.

Claim 30 (Withdrawn): A process of using an integrin subunit α11 having the amino acid sequence shown in SEQ ID No.1 or an integrin heterodimer comprising said subunit α11 and a subunit β, or homologues or fragments thereof, as a marker or target molecule of cells or tissues expressing said integrin subunit α11, which cells or tissues are of animal origin, comprising

introducing an integrin subunit α11 according to claim 1, or an integrin heterodimer comprising said subunit α11 and a subunit β into a cell or tissue of animal origin, and

allowing said subunit or heterodimer to bind to a target molecule of cells or tissues expressing said integrin subunit α11.

Claim 31 (Withdrawn): A process according to claim 30, which is a process for determining the differentiation-state of cells during differentiation, development, in pathological conditions, in tissue regeneration, in transplantation, or in therapeutic and physiological reparation of tissues.

Claim 32 (Withdrawn): A process according to claim 31, which process is used during pathological conditions involving said subunit α11.

Claim 33 (Withdrawn): A process according to claim 31, which pathological conditions are selected from the group consisting of damage of muscles, muscle dystrophy, fibrosis and wound healing.

Claim 34 (Withdrawn): A process according to claim 31, which pathological conditions are selected from the group consisting of damage of cartilage and/or bone, and cartilage and/or bone diseases.

Claim 35 (Withdrawn): A process according to claim 31, which pathological conditions are selected from the group consisting of trauma, rheumatoid arthritis, osteoarthritis and osteoporosis.

Claim 36 (Withdrawn): A process according to claim 30, which is a process for detecting the formation of cartilage during embryonic development.

Claim 37 (Withdrawn): A process according to claim 30, which is a process for detecting physiological or therapeutic repair of cartilage and/or muscle.

Claim 38 (Withdrawn): A process according to claim 30, which is a process for selection and analysis, or for sorting, isolating or purification of chondrocytes and/or muscle cells.

Claim 39 (Withdrawn): A process according to claim 30, which is a process for detecting regeneration of cartilage or chondrocytes during transplantation of cartilage or chondrocytes, respectively, or of muscle or muscle cells during transplantation of muscle or muscle cells, respectively.

Claim 40 (Withdrawn): A process according to claim 30, which is a process for studies of differentiation of chondrocytes or muscle cells.

Claim 41 (Withdrawn): A process according to claim 30, which is an *in vitro* process.

Claim 42 (Withdrawn): A process according to claim 30, which is an *in situ* process.

Claim 43 (Withdrawn): A process according to claim 30, which is an *in vivo* process.

Claim 44 (Withdrawn): A process according to claim 30, whereby a fragment of said integrin subunit α11 is a peptide chosen from the group comprising peptides of the cytoplasmic domain, the I-domain and the extracellular extension region.

Claim 45 (Withdrawn): A process according to claim 44, whereby said fragment is a peptide having the amino acid sequence KLGFFRSARRRREPGLDPTPKVLE (SEQ ID No. 3) from the cytoplasmic domain.

Claim 46 (Withdrawn): A process according to claim 44, whereby said fragment is a peptide having the amino acid sequence of the extracellular domain, from about amino acid No. 804 to about amino acid No. 826 of SEQ ID No. 1.

Claim 47 (Withdrawn): A process according to claim 44, whereby said fragment is a peptide having the amino acid sequence of the I-domain, from about amino acid No. 159 to about amino acid No. 355 of SEQ ID No. 1.

Claim 48 (Withdrawn): A process according to claim 30, whereby a subunit β of the integrin heterodimer is β1.

Claim 49 (Withdrawn): A process according to claim 30, whereby said cells are chosen from the group comprising fibroblasts, muscle cells, chondrocytes, osteoblasts, mesenchymally derived cells and stem cells.

Claim 50 (Withdrawn): A process of using binding entities having the capability of binding specifically to binding sites of an integrin subunit α11 having the amino acid sequence shown in SEQ ID No. 1, or an integrin heterodimer comprising said subunit α11 and a subunit β, or to homologues or fragments thereof, as markers or target molecules of cells or tissues expressing said integrin subunit α11, which cells or tissues are of animal origin.

Claim 51 (Withdrawn): A process according to claim 50, which is a process for detecting the presence of an integrin subunit α11 having the amino acid sequence shown in SEQ ID No. 1, or of an integrin heterodimer comprising said subunit α11 and a subunit β, or of homologues or fragments thereof.

Claim 52 (Withdrawn): A process according to claim 50, which is a process for determining the differentiation-state of cells during differentiation, development, in pathological conditions, in tissue regeneration, in transplantation, or in therapeutic and physiological repair of tissues.

Claim 53 (Withdrawn): A process according to claim 52, which process is used during pathological conditions involving said subunit α11.

Claim 54 (Withdrawn): A process according to claim 52, which pathological conditions are selected from the group consisting of damage of muscles, muscle dystrophy, fibrosis and wound healing.

Claim 55 (Withdrawn): A process according to claim 52, which pathological conditions are selected from the group consisting of damage of cartilage and/or bone, and cartilage and/or bone diseases.

Claim 56 (Withdrawn): A process according to claim 52, which pathological conditions are selected from the group consisting of trauma, rheumatoid arthritis, osteoarthritis and osteoporosis.

Claim 57 (Withdrawn): A process according to claim 52 which is a process for detecting the formation of cartilage during embryonic development.

Claim 58 (Withdrawn): A process according to claim 52, which is a process for detecting physiological or therapeutic reparation of cartilage and/or muscle.

Claim 59 (Withdrawn): A process according to claim 52, which is a process for selection and analysis, or for sorting, isolating or purification of chondrocytes and/or muscle cells.

Claim 60 (Withdrawn): A process according to claim 52, which is a process for detecting regeneration of cartilage or chondrocytes during transplantation of cartilage or chondrocytes, respectively, or of muscle or muscle cells during transplantation of muscle or muscle cells, respectively.

Claim 61 (Withdrawn): A process according to claim 52, which is a process for studies of differentiation of chondrocytes or muscle cells.

Claim 62 (Withdrawn): A process according to claim 50, which is an *in vitro* process.

Claim 63 (Withdrawn): A process according to claim 50, which is an *in situ* process.

Claim 64 (Withdrawn): A process according to claim 50, which is an *in vivo* process.

Claim 65 (Withdrawn): A process according to claim 50, whereby a fragment of said integrin subunit α11 is a peptide chosen from the group comprising peptides of the cytoplasmic domain, the I-domain and the extracellular extension region.

Claim 66 (Withdrawn): A process according to claim 65, whereby said fragment is a peptide having the amino acid sequence KLGFFRSKRRRREPGLDPTPKVLE (SEQ ID No. 3) from the cytoplasmic domain.

Claim 67 (Withdrawn): A process according to claim 65, whereby said fragment is a peptide having the amino acid sequence of the extracellular domain, from about amino acid No. 804 to about amino acid No. 826 of SEQ ID No. 1.

Claim 68 (Withdrawn): A process according to claim 65, whereby said fragment is a peptide having the amino acid sequence of the I-domain, from about amino acid No. 159 to about amino acid No. 355 of SEQ ID No. 1.

Claim 69 (Withdrawn): A process according to claim 50, whereby a subunit β of the integrin heterodimer is β1.

Claim 70 (Withdrawn): A process according to claim 50, whereby said cells are chosen from the group comprising fibroblasts, muscle cells, chondrocytes, osteoblasts, mesenchymally derived cells and stem cells.

Claim 71 (Withdrawn): A process for detecting the presence of an integrin subunit α11, or of homologues or fragments of said integrin subunit, on cells, whereby a polynucleotide or oligonucleotide chosen from the group comprising a polynucleotide or oligonucleotide having the nucleotide sequence as shown in SEQ ID No. 1, or homologues or fragments thereof, is used as a marker under hybridization conditions, wherein said polynucleotide or oligonucleotide fails to hybridize to a polynucleotide or oligonucleotide encoding an integrin subunit α10.

Claim 72 (Withdrawn): A process according to claim 71, which is a process for determining the differentiation-state of cells during differentiation, development, in pathological conditions, in tissue regeneration, in transplantation, or in therapeutic and physiological reparation of tissues.

Claim 73 (Withdrawn): A process according to claim 72, which process is used during pathological conditions involving said subunit α11.

Claim 74 (Withdrawn): A process according to claim 72, which pathological conditions are selected from the group consisting of damage of muscles, muscle dystrophy, fibrosis and wound healing.

Claim 75 (Withdrawn): A process according to claim 72, which pathological conditions are selected from the group consisting of damage of cartilage and/or bone, and cartilage and/or bone diseases.

Claim 76 (Withdrawn): A process according to claim 72, which pathological conditions are selected from the group consisting of trauma, rheumatoid arthritis, osteoarthritis and osteoporosis.

Claim 77 (Withdrawn): A process according to claim 72, which is a process for detecting the formation of cartilage during embryonic development.

Claim 78 (Withdrawn): A process according to claim 72, which is a process for detecting physiological or therapeutic reparation of cartilage and/or muscle.

Claim 79 (Withdrawn): A process according to claim 72, which is a process for selection and analysis, or for sorting, isolating or purification of chondrocytes and/or muscle cells.

Claim 80 (Withdrawn): a process according to claim 72, which is a process for detecting regeneration of cartilage or chondrocytes during transplantation of

cartilage or chondrocytes, respectively, or of muscle or muscle cells during transplantation of muscle or muscle cells, respectively.

Claim 81 (Withdrawn): A process according to claim 72, which is a process for studies of differentiation of chondrocytes or muscle cells.

Claim 82 (Withdrawn): A process according to claim 71, which is an *in vitro* process.

Claim 83 (Withdrawn): A process according to claim 71, which is an *in situ* process.

Claim 84 (Withdrawn): A process according to claim 71, which is an *in vivo* process.

Claim 85 (Withdrawn): A process according to claim 71, whereby said polynucleotide or oligonucleotide is a polynucleotide or oligonucleotide coding for a peptide chosen from the group consisting of peptides of the cytoplasmic domain, the I-domain and the extracellular extension region.

Claim 86 (Withdrawn): A process according to claim 85, whereby said peptide is a peptide having the amino acid sequence KLGFFRSARRRREPGLDPTPKVLE (SEQ ID No. 3) from the cytoplasmic domain.

Claim 87 (Withdrawn): A process according to claim 85, whereby said peptide is a peptide having the amino acid sequence of the extracellular domain, from about amino acid No. 804 to about amino acid No. 826 of SEQ ID No. 1.

Claim 88 (Withdrawn): A process according to claim 85, whereby said peptide is a peptide having the amino acid sequence of the I-domain, from about amino acid No. 159 to about amino acid No. 355 of SEQ ID No. 1.

Claim 89 (Withdrawn): A process according to claim 71, whereby a subunit β of the integrin heterodimer is β1.

Claim 90 (Withdrawn): A process according to claim 71, whereby said cells are chosen from the group comprising fibroblasts, muscle cells, chondrocytes, osteoblasts, mesenchymally derived cells and stem cells.

Claim 91 (Withdrawn): A pharmaceutical composition comprising as an active ingredient a pharmaceutical agent or an antibody which is capable of using an integrin heterodimer comprising a subunit α11 and a subunit β, or the subunit α11 thereof, or homologues or fragment of said integrin or subunit α11, as a target molecule.

Claim 92 (Withdrawn): A pharmaceutical composition comprising as an active ingredient a pharmaceutical agent or an antibody which is capable of stimulating cell surface expression or activation of an integrin heterodimer comprising a subunit α11 and a subunit β, or the subunit α11 thereof, or homologues or fragments of said integrin or subunit α11.

Claim 93 (Withdrawn): a pharmaceutical composition according to claim 92, for use in stimulating, inhibiting or blocking the formation of muscles, cartilage, bone or blood vessels.

Claim 94 (Canceled).

Claim 95 (Withdrawn): A method of gene therapy, whereby vector comprising a polynucleotide or oligonucleotide coding for a subunit α11 of an integrin heterodimer, or for homologues or fragments thereof, which polynucleotide or oligonucleotide has the nucleotide sequence shown in SEQ ID No: 1 or parts thereof, and optionally a second vector comprising a polynucleotide or oligonucleotide coding for a subunit β of said integrin heterodimer, is administered to a subject suffering from pathological conditions involving said subunit α11.

Claim 96 (Withdrawn): A method of promoting adhesion of cells comprising introducing to a cell sample binding entities having the capability of binding specifically to binding sites of a integrin subunit α11 comprising substantially the amino acid sequence shown in SEQ ID No. 1, or of an integrin heterodimer comprising said subunit α11 and a subunit β, or to homologues or fragments thereof.

Claim 97 (Withdrawn): A method of targeting for antiadhesive drugs or molecules in tissues comprising adding to a tissue an integrin heterodimer comprising an integrin subunit α11 and a subunit β, or the subunit α11 thereof, or homologues or fragments of said integrin or subunit α11, as a target for antiadhesive drugs or molecules in tissues where adhesion impairs the function of the tissue.

Claim 98 (Withdrawn): A method of in vitro detecting the presence of integrin binding entities, comprising introducing an integrin heterodimer comprising a subunit α11 and a subunit β, or the subunit α11 thereof, or homologues or fragments of said integrin or subunit, to a sample, thereby causing said integrin, subunit α11, or homologue or fragment thereof, to modulate the binding to its natural ligand or other integrin binding proteins present in said sample.

Claim 99 (Withdrawn): A method of in vitro studying consequences of the interaction of a human heterodimer integrin comprising introducing a subunit α11 and a subunit β, or the subunit α11 thereof, or homologues or fragments of said integrin or subunit, with an integrin binding entity and thereby initiate a cellular reaction, and observing said cellular reaction.

Claim 100 (Withdrawn): A method according to claim 99, whereby the consequences of said interactions are measured as alterations in cellular functions.

Claim 101 (Withdrawn): A method of targeting molecules comprising introducing a polynucleotide or oligonucleotide encoding an integrin subunit α11 or homologues or fragments thereof.

Claim 102 (Withdrawn): A method according to claim 101, comprising hybridizing a polynucleotide or oligonucleotide to the DNA or RNA encoding the integrin subunit α11 or homologue or fragment thereof, which polynucleotide or oligonucleotide fails to hybridise to a polynucleotide or oligonucleotide encoding an integrin subunit α10.

Claim 103 (Withdrawn): A method of promoting adhesion of chondrocytes and/or osteoblasts to surfaces of implants to stimulate osseointegration comprising introducing binding entities having the capability of binding specifically to an integrin subunit α11 comprising the amino acid sequence shown in SEQ ID No. 1 or SEQ ID No. 2, or an integrin heterodimer comprising said subunit α11 and a subunit β, or to homologues or fragments thereof having similar biological activity, to surfaces of implants wherein said binding entities stimulate osseointegration.

Claim 104 (Withdrawn): A method of targeting for antiadhesive drugs or molecules in tendon, ligament, skeletal muscle or other tissues comprising

introducing an integrin heterodimer comprising an integrin subunit α11 and a subunit β, or the subunit α11 thereof, or homologues or fragments of said integrin or subunit α11, and monitoring for adhesion.

Claim 105 (Withdrawn): A method of stimulating, inhibiting or blocking the formation of cartilage or bone, comprising administration to a subject a suitable amount of a pharmaceutical agent or an antibody which is capable of targeting an integrin heterodimer comprising a subunit α11 and a subunit β, or the subunit α11 thereof, or homologues or fragments of said integrin or subunit α11.

Claim 106 (Canceled).

Claim 107 (Withdrawn): A process of producing a recombinant integrin subunit α11 as recited in claim 106, which process comprises the steps of

a) isolating a polynucleotide comprising a nucleotide sequence coding for a integrin subunit α11,

b) constructing an expression vector comprising the isolated polynucleotide,

c) transforming a host cell with said expression vector,

d) culturing said transformed host cell in a culture medium under conditions suitable for expression of said integrin subunit α11 in said transformed host cell, and, optionally,

e) isolating the integrin subunit α11 from said transformed host cell or said culture medium.

Claim 108 (Withdrawn): An isolated polynucleotide or oligonucleotide comprising a nucleotide coding for an integrin subunit α11, which polynucleotide or oligonucleotide comprises the nucleotide sequence shown in SEQ ID No. 1 or suitable parts thereof sufficient for expression of an integrin subunit α11.

Claim 109 (Withdrawn): An isolated polynucleotide or oligonucleotide which hybridizes to a polynucleotide or oligonucleotide as defined in claim 108, whereby said isolated polynucleotide or oligonucleotide fails to hybridize to a polynucleotide or oligonucleotide encoding an integrin subunit α10.

Claim 110 (Withdrawn): A vector comprising a polynucleotide or oligonucleotide as defined in claim 108.

Claim 111 (Withdrawn): A cell containing the vector as defined in claim 110.

Claim 112 (Withdrawn): An isolated nucleic acid encoding an integrin subunit, wherein the nucleic acid encodes amino acid Nos. 804 to 826 of SEQ ID No:1.

Claim 113 (Canceled).

Claim 114 (Withdrawn): Binding entities having the capability of binding specifically to integrin subunit α11, as defined in claim 106, which entities are selected from the group consisting of proteins, peptides, carbohydrates, lipids, natural integrin binding ligands, polyclonal and monoclonal antibodies, and fragments thereof.

Claims 115-116 (Canceled).

Claim 117 (Withdrawn): A process of producing a recombinant integrin heterodimer according to claim 115, which process comprises the steps of

a) isolating one polynucleotide or oligonucleotide comprising a nucleotide sequence coding for said subunit α11 of said integrin heterodimer, and another polynucleotide comprising a nucleotide sequence coding for said subunit β of an integrin heterodimer,

b) constructing an expression vector comprising said isolated polynucleotides or oligonucleotides

c) transforming a host cell with said expression vector or vectors,

d) culturing said transformed host cell in a culture medium under conditions suitable for expression of said integrin heterodimer in said transformed host cell, and, optionally,

e) isolating said integrin heterodimer from said transformed host cell or said culture medium.

Claim 118 (Withdrawn): A cell containing

i) a first vector, said first vector comprising a polynucleotide or oligonucleotide coding a subunit α11 of an integrin heterodimer, as recited in claim 106, and

ii) a second vector, said second vector comprising a polynucleotide or oligonucleotide coding for a subunit of said integrin heterodimer.

Claim 119 (Canceled).

Claim 120 (Withdrawn): Binding entities having the capability of binding specifically to an integrin heterodimer as defined in claim 115, said binding entities

being chosen among the group comprising proteins, peptides, carbohydrates, lipids, natural integrin binding ligands, polyclonal and monoclonal antibodies, and fragments thereof.

Claims 121-124 (Canceled).

Claim 125 (Withdrawn): A polynucleotide or oligonucleotide coding for a fragment of the integrin subunit α11 as defined in claim 121.

Claim 126 (Canceled).

Claim 127 (Withdrawn): Binding entities having the capability of binding specifically to an integrin subunit α11 fragment as defined in claim 121, which binding entities are chosen from the group comprising proteins, peptides, carbohydrates, lipids, natural integrin binding ligands, monoclonal and polyclonal antibodies, and fragments thereof.

Claim 128 (Withdrawn): A process of using an integrin subunit α11 according to claim 106, or an integrin heterodimer comprising said subunit α11 and a subunit β, as a marker for target molecule of cells or tissues expressing said integrin subunit α11, comprising

introducing said integrin subunit or integrin heterodimer into a cell or tissue of animal origin, and

allowing said subunit or heterodimer to bind to a target molecule of cells or tissues expressing said integrin subunit α11.

Claim 129 (Withdrawn): A process for determining the differentiation-state of cells during differentiation, development, in pathological conditions, in tissue

regeneration, in transplantation, or in therapeutic and physiological reparation of tissues, comprising

introducing an integrin subunit α11 according to claim 106, or an integrin heterodimer comprising said subunit α11 and a subunit β into a cell or tissue of animal origin, and

allowing said subunit or heterodimer to bind to a target molecule of cells or tissues expressing said integrin subunit α11.

Claim 130 (Withdrawn): A process according to claim 129, which process is used during pathological conditions involving said subunit α11.

Claim 131 (Withdrawn): A process according to claim 130, which pathological conditions are selected from the group consisting of damage of muscles, muscle dystrophy, fibrosis and wound healing.

Claim 132 (Withdrawn): A process according to claim 130, which pathological conditions are selected from the group consisting of damage of cartilage and/or bone, and cartilage and/or bone diseases.

Claim 133 (Withdrawn): A process according to claim 130, which pathological conditions are selected from the group consisting of trauma, rheumatoid arthritis, osteoarthritis and osteoporosis.

Claim 134 (Withdrawn): A process according to claim 129, whereby a fragment of said integrin subunit α11 is introduced, said fragment being a peptide selected from the group consisting of peptides of the cytoplasmic domain, the I-domain and the extracellular extension region.

Claim 135 (Withdrawn): A process according to claim 134, whereby said fragment is a peptide comprising essentially the amino acid sequence KLGFFRSARRRREPGLDPTPKVLE (SEQ ID No. 3) from the cytoplasmic domain.

Claim 136 (Withdrawn): A process according to claim 134, whereby said fragment is a peptide having the amino acid sequence of the extracellular domain, from about amino acid No. 804 to about amino acid No. 826 of SEQ ID No. 1.

Claim 137 (Withdrawn): A process according to claim 134, whereby said fragment is a peptide having the amino acid sequence of the I-domain, from about amino acid No. 159 to about amino acid No. 355 of SEQ ID No. 1.

Claim 138 (Withdrawn): A process according to claim 129, whereby a subunit β of the integrin heterodimer is β1.

Claim 139 (Withdrawn): A process for detecting the presence of an integrin subunit α11 on cells, comprising

introducing a polynucleotide or oligonucleotide according to claim 125, or homologues or fragments thereof, into a cell, and

detecting hybridization of said polynucleotide or oligonucleotide, under conditions sufficient to allow hybridization of said polynucleotide or oligonucleotide to an integrin subunit α11,

wherein said polynucleotide or oligonucleotide does not hybridize to a polynucleotide or oligonucleotide encoding an integrin subunit α10.

Claim 140 (Withdrawn): A process according to claim 139, whereby said polynucleotide or oligonucleotide is a polynucleotide or oligonucleotide coding for a

peptide selected from the group consisting of peptides of the cytoplasmic domain, the I-domain and the extracellular extension region.

Claim 141 (Withdrawn): A process according to claim 140, whereby said peptide is a peptide having the amino acid sequence KLGFFRSARRRREPGLDPTPKVLE (SEQ ID No. 3) from the cytoplasmic domain.

Claim 142 (Withdrawn): A process according to claim 140, whereby said peptide is a peptide having the amino acid sequence of the extracellular domain, from about amino acid No. 804 to about amino acid No. 826 of SEQ ID No. 1.

Claim 143 (Withdrawn): A process according to claim 140, whereby said peptide is a peptide having the amino acid sequence of the I-domain, from about amino acid No. 159 to about amino acid No. 355 of SEQ ID No. 1.

Claim 144 (Withdrawn): A pharmaceutical composition comprising as an active ingredient a pharmaceutical agent or an antibody which is capable of using an integrin heterodimer comprising a subunit α11 as recited in claim 106 and a subunit ß, or the subunit α11 thereof, as a target molecule.

Claim 145 (Withdrawn): A pharmaceutical composition comprising as an active ingredient a pharmaceutical agent or an antibody which is capable of stimulating cell surface expression or activation or an integrin heterodimer comprising a subunit α11 as recited in claim 106 and a subunit ß, or the subunit α11 thereof.

Claim 146 (Canceled).

Claim 147 (Withdrawn): A method of gene therapy, whereby vector comprising a polynucleotide or oligonucleotide coding for a subunit α11 of an integrin heterodimer, or for homologues or fragments thereof, which polynucleotide or oligonucleotide comprises essentially the nucleotide sequence shown in SEQ ID No: 1 or parts thereof, and optionally a second vector comprising a polynucleotide or oligonucleotide coding for a subunit β of said integrin heterodimer, is administered to a subject suffering from pathological conditions involving said subunit α11.

Claim 148 (Withdrawn): A method of stimulating, inhibiting or blocking the formation of cartilage or bone, comprising administering to a subject in need of such treatment an effective amount of a pharmaceutical agent or an antibody which is capable of using an integrin heterodimer comprising a subunit α11 as recited in claim 106 and a subunit β, or the subunit α11 thereof, as a target molecule.

Claim 149 (Canceled).

Claim 150 – 152. (Canceled)

Claim 153. (New) A fragment of an integrin subunit α11 according to claim 1, said fragment being a peptide consisting of the amino acid sequence of the extracellular domain, from amino acid No. 804 to amino acid No. 826 of SEQ ID NO:2.

Claim 154. (New) A fragment of an integrin subunit α11 according to claim 1, said fragment being a collagen type I-binding peptide comprising the amino acid sequence of the I-domain, from amino acid No. 159 to amino acid No. 355 of SEQ ID NO:2.

Claim 155. (New) A recombinant integrin subunit α11 according to claim 1, comprising the amino acid sequence of SEQ ID NO:2.